

REMARKS

Pursuant to 37 C.F.R. §1.111, reconsideration of the instant application, as amended herewith, is respectfully requested. Entry of the amendment is requested.

Claims 1-7 are presently pending before the Office. No claims have been canceled. Applicant has amended the claims. No new matter has been added. Support for the amendments can be found throughout the specification as originally filed, and in particular at Pages 8 and 9. Applicant is not intending in any manner to narrow the scope of the originally filed claims.

The Examiner's Action mailed January 24, 2007 and the references cited therein have been carefully studied by Applicant and the undersigned counsel. The amendments appearing herein and these explanatory remarks are believed to be fully responsive to the Action. Accordingly, this important patent application is believed to be in condition for allowance.

Relying on 35 U.S.C. §103(a), the Examiner has rejected the subject matter of claim 1 as obvious over Schur in view of Fries. In addition, the Examiner has rejected the subject matter of claims 2-7 as obvious over Schur in view of Fries and JP50-136541. Applicant respectfully traverses the rejection and requests reconsideration.

It is evident that Applicant's invention is decidedly different from the teachings of the combination of patents cited by the examiner. Applicant submits that the view of the Examiner is not correct for the following reasons:

The present invention relates to a buoyancy-utilizing generating set adapted to rotate a generator for generating electrical energy by utilizing the buoyancy of a bubbled gas moving up in a liquid, wherein the technical features and further embodiments are defined in claims 1 to 7. The main feature of claim 1 is that the buoyancy-utilizing generating set provides a pipe, closed at one end, with a plurality of micro-size(very small diameter) holes to produce micro(very small diameter)-bubbles to fill the moving buckets. This feature cannot be found in any of the prior art documents.

1. US Pat.3,715,885 (Schur) discloses in Fig. 7 a buoyancy motor comprising a conveyor (an endless turbine belt) 60 having buckets (the turbine cups) 64, a pair of rollers 61,62, the lower roller is connected with an electric generator 71, a pipe (the conduit) 39 having a plurality

of holes (the vertical discharge orifice tubes) 43 for sending compressed gas to generate bubbles to drive the motor.

But there is no device for shaping the micro-bubbles uniformly, i.e. Document US Pat.3,715,885 discloses only a pipe 39 having a plurality of usual-size holes 43 for sending compressed gas to generate usual-size bubbles to fill the turbine cups 64.

2. In the same way, US Pat.4,196,590 (Fries) discloses only a buoyancy machine using a closed-end pipe (gas release device) 26 having usual-size holes (a plurality of ports) 26a to generate usual-size bubbles 32 to fill the spaces provided by vanes 16a. But there is no device for shaping the micro-bubbles uniformly.

Due to the fact that the technical improvement of the specific pipe closed at one end and with a plurality of holes forming micro-bubbles is neither described in the above-mentioned documents nor in any document that has been cited in the state of the art, applicant submits that claim 1 is allowable and that dependent claims 2 to 7 are accordingly patentable as well.

The present invention provides an optimized buoyancy-utilizing generating set. Optimization in this case means, a heightening of the electric power energy obtained from a generator rotated by using buoyancy occurring in a gas sent in the form of bubbles into a liquid. To achieve such a purpose the buoyancy-utilizing generating set as described in the present invention is provided additionally to a conveyor and a number of buckets arranged around the conveyor, with a front-end closed pipe and a plurality of holes through which uniform micro-bubbles are sent out into the buckets above.

The advantage of small controlled released bubbles can be described as follows: Small bubbles have a lower resistance in the circumfluent liquid as bigger bubbles, therefore, arising in the bucket easier and faster than bigger bubbles. Furthermore, small bubbles fill up the bucket evenly and more dense by building cubic close-packing. Bigger bubbles could handicap each other so that not every bubble might reach the bucket, and those which moved into the bucket might not fill it completely so that the buoyancy could differ from bucket to bucket depending on the loading of the buckets with bubbles leading to an unbalanced discontinuous movement of the buckets. Thus, small micro-bubbles have a bigger share on the emerging electricity.

The idea described in original sub-claim 5 further indicates great value for solving the problem of the present invention to provide an optimized buoyancy-utilizing generating set. The invention described in original sub-claim 5 discloses that a predetermined quantity of liquid is stored in the interior of the tower so that a level of an upper end of the liquid becomes substantially equal to the height of an upper end of the conveyor. In this case, the bucket provided on the outer side of the conveyor reaches the upper end of the conveyor or a position near the upper end thereof and is directed at the opening thereof upward or substantially upward with the gas sent into the bucket discharged to the outside thereof to cause the bucket to cease receiving the buoyancy from the liquid in the interior of the tower, the bucket reaching the upper end of the conveyor or a position near the end thereof can be exposed from the interior of the liquid of a high fluid resistance in the tower to the atmospheric air of a low fluid resistance. Therefore, the bucket reaching the upper end of the conveyor or a position near the upper end thereof and exposed into the atmospheric air can be turned with the conveyor smoothly on the outer side thereof with a very low resistance. A value of the fluid resistance exerted on the bucket turned with the conveyor can be lowered greatly.

This feature cannot be found in the above-mentioned documents or in any of the prior art documents.

In the same way, US Pat.4,054,031 (Johnson) discloses only a power unit provided with an air-discharge pipe 66 having a plurality of usual-size discharge orifices 68 which are spaced apart longitudinally of the discharge pipe to generate usual-size bubbles to fill the buckets 44. But there is no device for shaping the micro-bubbles uniformly. However, US.Pat.

4,054,031(Johnson) discloses in Fig. 2 the container 10 which is filled with water to a level just below the top of roller 18 (see column 4 line 3-4). And as the buckets 44 pass around the top of roller 18, they collapse and discharge the air therefrom so that, as they are carried downwardly, they are maintained in the collapsed position by the pressure of the water against the movable panel 48 (see column 4 line 12-16).

Regarding JP50-136541, this reference discloses what appears to be a rigid chamber 15 into which the gas bubbles are dispersed generally for eventual capture in containers 35. Plenum 15 can not be construed as a flexible guide plate as structured in claim 3 of the present invention.

Further, the containers 35 of the cited reference do not incorporate a sub-guide plate separate from the guide plate of the present invention.

Accordingly, the Examiner has not established a prima facie case of obviousness.

Clearly, in the absence of any suggestion or in view of the absence of any teaching whatsoever of how one skilled in the art would attempt to combine the cited references to produce the present invention, one skilled in the art would certainly not find ample motivation to use these references to reject the claims of the instant application.

The Office has used the claimed invention as a reference against itself as if it had preceded itself in time. Legal authority invalidates such an analytical or reverse engineering approach to patent examination. It is not Applicant's burden to refute the Office's position that it would have been obvious to one of ordinary skill in this art at the time this invention was made to arrive at the present invention in view of the cited patents. It is the burden of the Office to show some teaching or suggestion in the reference to support this allegation. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d at 1051, 5 U.S.P.Q.2d at 1438-39 (Fed. Cir. 1988).

A finding by the Office that a claimed invention would have been obvious to one of ordinary skill in the art at the time the invention was made based merely upon finding similar elements in a prior art reference would be "contrary to statute and would defeat the congressional purpose in enacting Title 35." Panduit Corp. v. Dennison Mfg. Co., 1 U.S.P.Q.2d 1593 at 1605 (Fed. Cir. 1987). Accordingly, Applicant respectfully submits that claims 1-7, as amended herein, are patentable over the cited references under 35 U.S.C. §103(a). Withdrawal of the rejection is respectfully requested.

CONCLUSION

As the Federal Circuit observed in Orthopedic Equipment Co. v. United States, 702 F.2d 1005, 217 U.S.P.Q. 193 (Fed. Cir. 1983):

The question of nonobviousness is a simple one to ask, but difficult to answer ... The difficulty which attaches to all honest attempts to answer this question can be attributed to the strong temptation to rely on hindsight while undertaking this evaluation. It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning quarterbacking is quite improper when resolving the question of nonobviousness ...

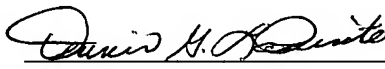
Even though the initial claims in this important patent application were drawn to a new, useful and nonobvious invention, they have now been amended to increase their specificity of language.

A Notice of Allowance is earnestly solicited.

If the Office is not fully persuaded as to the merits of Applicant's position, or if an Examiner's Amendment would place the pending claims in condition for allowance, a telephone call to the undersigned at (727) 943-9300 would be appreciated.

Very respectfully,

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